UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/522,407	03/09/2000	Toshihiro Shima	Q58164	4033

7590	09/16/2005

Sughrue Mion Zinn Macpeak & Seas PLLC
2100 Pennsylvania Avenue NW
Washington, DC 20037-3202

EXAMINER
POON, KING Y

ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
Office Action Summary		09/522,407	SHIMA, TOSHIHIRO
		Examiner	Art Unit
		King Y. Poon	2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 June 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>09 March 2000</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

2.   Claims 11, 12 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

Regarding claim 11: Claim 11 is claiming writing print data into a memory,

reading the written print data out of the memory to generate a request for printing. From

the claim, the writing process must be precedently executed before the request for

printing can be generated. It unclear how is it possible (from reading the claim

language) to precedently executed the writing process after the print request is

generated.

Regarding claim 12: Claims 12 is claiming changing the priority of the printing

task and the printing task is always set at the highest priority. It is unclear how it is

possible to change the priority of a printing task and also always having the priority of

the printing task at the highest. Once the highest priority of the printing task is changed,

the printing task is not set at the highest priority any more.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 1-4, 6, 7 are rejected under 35 U.S.C. 102(b) as being anticipated by

Shima et al (EP 0782067 A2).

Regarding claim 1: Shima teaches a printer (column 6, line 39) provided with an

auxiliary storage (column 15, line 1), comprising: a printing task (column 6, lines 57-59,

column 7, lines 30-35, column 14, line 24) for executing processing related to the

control of a print engine (column 6, line 48) according to a request for printing

(converting intermediate print information into bitmap, column 16, lines 5-15, column 6,

lines 54-57); an image generation task (task for converting intermediate print

information into bitmap, column 16, lines 5-15, column 6, lines 54-57, column 14, lines

45-50) for generating said request for printing based upon print data sent from an

external device (host, column 6, lines 39-46), a task for writing to the auxiliary storage

(column 14, lines 15-18, column 15, lines 45-46) by which data related to printing

(intermediate print data) is stored in said auxiliary storage, and a task for reading from

the auxiliary storage (inherently, the intermediate print data must read out by the

management task before the management task can convert the intermediate print data

into bitmap, column 14, lines 45-50, column 16,lines 5-15), by which said data stored in

said auxiliary storage is read, wherein each of said tasks are exclusively selected

(executed alternately; i.e., processing different tasks at different time, column 14, lines

25-30) and executed according to each priority (column 14, lines 25-30 priority, by definition, is something deserving prior attention or preceding earlier in time) wherein a relative order of priority based upon the priority of said task for writing to said auxiliary storage and the priority of said image generation task is varied (the priority must be varied, according to the definition of priority in order for the task to be processed; for example if task A must always (in all time) deserving prior attention or preceding earlier in time to be processed compare to task B, task B will never be processed) when a predetermined event occurs (when several –msec ends, column 14, lines 25-30).

Regarding claim 2: Shima teaches wherein priorities lower than the priority of said printing task (as discussed before, printing task must has the highest priority before printing task can be processed) is applied to said task for writing to said auxiliary storage and said task for reading from said auxiliary storage.

Regarding claim 3: Shima teaches wherein said predetermined event is a predetermined elapse of time (column 14, lines 25-30).

Regarding claim 4: Shima teaches wherein said predetermined event is an occurrence of a predetermined situation which occurs in a processing of any of tasks (see discussion of claim 1).

Regarding claim 6: Shima teaches wherein a priority lower than the priority of said task for reading from said auxiliary storage is applied to said task for writing to said auxiliary storage (in the situation that the CPU is in the cycle of reading form the auxiliary).

Regarding claim 7: Shima teaches a printer comprising: an auxiliary storage (column 15, lines 45-47) for storing data related to printing; a print engine (column 6, line 48) for executing printing; and a controller (column 6, lines 50-53) comprising: writing means (the program of the controller that writes, column 15, lines 5-10) for storing said data in said auxiliary storage; reading means (the program of the controller that writes, column 15, lines 5-10) for reading said data stored in said auxiliary storage, image generation means (program for converting intermediate print information into bitmap, column 16, lines 5-15, column 6, lines 54-57, column 14, lines 45-50) for generating a request for printing supplied to said print engine, and printing execution means (program that controls print engine, column 6, lines 55-59) for controlling said print engine, wherein, if a predetermined event occurs during processing for generating said printing request by said image generation means, said writing means is executed more precedent than a generation of said request for printing by said image generation means (see priority discussion of claim 1, and claim 2).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Shima et al (EP 0782067 A2).

Regarding claim 8: Shima wherein said data related to printing is stored in

storage 44 includes print data (print information sent form host, column 6, lines 40-45,

column 8, lines 10-20) sent from an external device (host, column 6, lines 40-45).

Shima does not teach to use auxiliary memory for storing print data sent from the

host.

However, Shima teaches, to the controller that controls printing, the auxiliary

memory 45 and memory 44 are one memory; i.e., the controller treat the two memory

as one single memory.

Moreover, Shima further teaches information saved in the RAM 44 can also be

saved in the auxiliary memory (column 17, lines 25-30); therefore, Shima indirectly

teaches storing print data received from the host.

Therefore, it would have been obvious to a person with ordinary skill in the art at

the time the invention was made to have modified Shima to use auxiliary memory for

storing print data sent from the host.

The reason for doing so would have prevented that main memory 44 from

running out of memory space and to bring out the true purpose of the auxiliary memory -

assisting the main memory.

Regarding claim 9: Shima teaches wherein said data related to printing stored in

memory storage 44 or auxiliary memory 45 (fig. 3) includes at least a part of said

request for printing (column 17, lines 7-30, fig. 13).

Shima does not specifically teach to use the auxiliary memory for storing at least

a part of said request for printing.

However, Shima teaches, to the controller that controls printing, the auxiliary

memory 45 and memory 44 are one memory; i.e., the controller treat the two memory

as one single memory.

Moreover, Shima further teaches information saved in the RAM 44 can also be

saved in the auxiliary memory (column 17, lines 25-30); therefore, Shima indirectly

teaches storing print data received from the host.

Therefore, it would have been obvious to a person with ordinary skill in the art at

the time the invention was made to have modified Shima to use the auxiliary memory

for storing at least a part of said request for printing.

The reason for doing so would have prevented that main memory 44 from

running out of memory space and to bring out the true purpose of the auxiliary memory -

assisting the main memory.

Regarding claim 10: Shima teaches a printer control method, comprising: a

writing process (column 15, lines 5-10) for storing print data (column 8, line 10) as it is

received from an external device (host, column 8, line 10) in a storage (RAM 44, column

8, lines 5-20), a reading process (column 15, lines 5-10) for reading print data written to

said auxiliary storage, a generation process (column 16, lines 5-15) for generating a

request for printing based upon said read print data; and a printing process (column 16,

lines 35-37) for printing based upon said request for printing, wherein a priority (column

14, lines 25-30 priority, by definition, is something deserving prior attention or preceding

earlier in time) of the writing process and a priority of the generation process are reversed every predetermined time interval (alternately, column 14, lines 25-30).

Shima does not teach to use auxiliary memory for storing print data sent from the host.

However, Shima teaches, to the controller that controls printing, the auxiliary memory 45 and memory 44 are one memory; i.e., the controller treat the two memory as one single memory.

Moreover, Shima further teaches information saved in the RAM 44 can also be saved in the auxiliary memory (column 17, lines 25-30); therefore, Shima indirectly teaches storing print data received from the host.

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Shima to use auxiliary memory for storing print data sent from the host.

The reason for doing so would have prevented that main memory 44 from running out of memory space and to bring out the true purpose of the auxiliary memory - assisting the main memory.

7.   Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shima et al as applied to claims 1, 4 above, and further in view of Zimmerman (US 5,490,237).

Regarding claim 5: Shima teaches does not teach wherein said predetermined event is judgment that quantity of requests for printing generated by said image

generation task and stored to be consumed by said printing task exceeds
predetermined quantity.

Zimmerman, in the same area of generating print request to be consumed by a
print engine, teaches to start printing when the print request (data buffered in the
memory, column 5, lines 25-40) stored to be consumed by the print engine exceeds
predetermined quantity.

Therefore, it would have been obvious to a person with ordinary skill in the art at
the time the invention was made to have modified Shima to include: the predetermined
event, that will trigger a printing priority task by the print engine, is judgment that
quantity of requests for printing generated by said image generation task and stored to
be consumed by said printing task exceeds predetermined quantity.

It would have been obvious to a person with ordinary skill in the art at the time
the invention was made to have modified Shima by the teaching of Zimmerman
because it would have create a low cost printer that would prevent a print overrun that
would cause the page "not printable." (Zimmerman, column 2, lines 1-55, column 2,
lines 20-25)

8.   Claims 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over
Shima et al (EP 0782067 A2) in view of Welland et al (US 5,247,677)

Regarding claim 12: Shima teaches a program (column 6, lines 50-55) for
controlling the printer discussed in claims 1, 2; inherently all program are stored in a
recording medium.

Note: the time the printing task is being executed is when the printing task is

most precedently executed according to priority.

Shima also teaches the execution of the different tasks executed by a CPU are

based on priority (column 14, lines 40-45) to determine which task get processed.

Shima, does not teach a priority changing section in the scheduler for changing

priorities of each of the writing task, reading task, image generating task and printing

task stored in a priority table of the CPU, wherein the priority changing section

prioritizes the printing task so that it is always set at the highest priority in the priority

table and most precedently executed when the CPU is to process the printing task

instead of other tasks.

Welland, in the same area of priority based scheduling of different task to be

performed by a CPU (column 2, lines 1-32, column 2, lines 57-60, column 3, lines 27-

50) teaches it is well known in the art (for priority based scheduling) to have a priority

changing section in the scheduler for changing priorities of each of the tasks to be

performed by a traditional CPU, such that the tasks can be processed by the CPU in

terms, stored in a priority table (fig. 2) of the CPU, wherein the priority changing section

prioritizes a particular task so that it is always set at the highest priority in the priority

table and most precedently executed when the CPU is to process the particular task

instead of other tasks.

Therefore, it would have been obvious to a person with ordinary skill in the art at

the time the invention was made to have modified Shima to include: a priority changing

section in the scheduler for changing priorities of each of the writing task, reading task,

image generating task and printing task stored in a priority table of the CPU, wherein the priority changing section prioritizes the printing task so that it is always set at the highest priority in the priority table and most precedently executed when the CPU is to process the printing task instead of other tasks.

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Shima by the teaching of Welland because: (a) it would have provided a well known and well organized method of performing the priority based scheduling of Shima; (a) using a well known method would save users lots of effort, money, and time to research for the implementation of the priority based scheduling of Shima (Shima does not provide detail how the priority based scheduling is carried out in his invention) – Welland and the well known method provides an effort/money/ time saving solution.

Regarding claim 13: Shima teaches a program (column 6, lines 50-55) for controlling the printer discussed in claim 1; inherently all program are stored in a recording medium.

Shima also teaches the execution of the different tasks executed by a CPU are based on priority (column 14, lines 40-45) to determine which task get processed.

Shima, does not teach a priority changing section in the scheduler for changing priorities of each of the writing task, and image generating task according to a predetermined condition.

Welland, in the same area of priority based scheduling of different task to be performed by a CPU (column 2, lines 1-32, column 2, lines 57-60, column 3, lines 27-

50) teaches it is well known in the art (for priority based scheduling) to have a priority changing section in the scheduler for changing priorities of each of the tasks to be performed by a traditional CPU, such that the tasks can be processed by the CPU in terms, stored in a priority table (fig. 2) of the CPU, wherein the priority changing section prioritizes a particular task so that it is always set at the highest priority in the priority table and most precedently executed when the CPU is to process the particular task instead of other tasks (predetermined condition, also see event, column 2, lines 32-40).

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Shima to include: a priority changing section in the scheduler for changing priorities of each of the writing task, and image generating task according to a predetermined condition.

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Shima by the teaching of Welland because: (a) it would have provided a well known and well organized method of performing the priority based scheduling of Shima; (a) using a well known method would save users lots of effort, money, and time to research for the implementation of the priority based scheduling of Shima (Shima does not provide detail how the priority based scheduling is carried out in his invention) – Welland and the well known method provides an effort/money/ time saving solution.

9.   Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shima as applied to claim 1 above, and further in view of Welland et al (US 5,247677).

Regarding claim 14: Shima teaches the execution of the different tasks executed by a CPU are based on priority (column 14, lines 40-45) to determine which task get processed.

Shima, does not teach the printer further comprise a scheduler that includes a priority table and a priority changing section in the scheduler for rewriting the relative order of priority of the writing task, and image generating task stored in the priority table when the predetermined event occurs.

Welland, in the same area of priority based scheduling of different task to be performed by a CPU (column 2, lines 1-32, column 2, lines 57-60, column 3, lines 27-50) teaches it is well known in the art (for priority based scheduling) to have a priority changing section in the scheduler for changing priorities of each of the tasks to be performed by a traditional CPU, such that the tasks can be processed by the CPU in terms, stored in a priority table (fig. 2) of the CPU, wherein the priority changing section prioritizes a particular task so that it is always set at the highest priority in the priority table and most precedently executed when the CPU is to process the particular task instead of other tasks (predetermined condition, also see event, column 2, lines 32-40).

Therefore, it would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Shima to include: the printer further comprise a scheduler that includes a priority table and a priority changing section in the scheduler for rewriting the relative order of priority of the writing task, and image generating task stored in the priority table when the predetermined event occurs.

It would have been obvious to a person with ordinary skill in the art at the time

the invention was made to have modified Shima by the teaching of Welland because:

(a) it would have provided a well known and well organized method of performing the

priority based scheduling of Shima; (a) using a well known method would save users

lots of effort, money, and time to research for the implementation of the priority based

scheduling of Shima (Shima does not provide detail how the priority based scheduling is

carried out in his invention) – Welland and the well known method provides an

effort/money/ time saving solution.

Response to Arguments

10.   Applicant's arguments filed 6/29/2005 have been fully considered but they are

not persuasive.

With respect to applicant's argument that one of ordinary skill in the art can

correctly interpret by referring to the specification because the first print data is received

by the printer after the second print data is received; has been considered.

In reply: Claim 11 is claiming storing print data received from an external device.

The examiner could agree with the applicant that the print data received of line 2, claim

11, is referring to a first print data and a second print data. If that is the interpretation

that the examiner goes by, the "print data" of line 4, 5, also should be interpreted as the

first print data and the second print data. A person with ordinary skill in the art can not

guess which print data is the first print data, which print data is the second print data which print data is the first print data and the second print data.

Claim 11 is claiming writing a first print data and a second print data into a memory, reading the written first print data and the second print data out of the memory to generate a request for printing. From the claim, the writing process must be precedently executed before the request for printing can be generated. It unclear how is it possible (from reading the claim language) to precedently executed the writing process after the print request is generated.

With respect to applicant's argument that Shima does not teach a relative priority is varied, has been considered.

In reply: The examiner is interpreting priority in the claim as referring to the right to be processed before others at the moment when the CPU is taking in a task to be processed. If there are object A and object B, and object B has been selected, the examiner is interpreting that object B is having priority over object A.

For example: There are task 1, task 2 and task 3. CPU will take in either task 1, task 2 and task 3 to be processed. Assuming task 1 has the right to be processed and the CPU take in task 1 to be processed. After the CPU processing time has expired, and the CPU will select another task to be processed. If task 1 again having an establish right to be processed (priority), task 1 will be selected again. The priority of processing task 1 must be lower than other tasks at the time the CPU is selecting a task to be processed , in order for the other tasks can be selected. Otherwise it contradicts the customary meaning of priority.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to King Y. Poon whose telephone number is 571-272-7440. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 14, 2005

KING Y. POON
PRIMARY EXAMINER